5. P. Deift, C. Tomei, and E. Trubowitz, *Inverse scattering and the Boussiesq equation*, Comm. Pure Appl. Math. **35** (1982), 567–628.

6. C S. Gardner, J. M. Greene, M. D. Kruskal, and R. M. Miura, *Method for solving the Korteweg–de Vries equation*, Phys. Rev. Lett. **19** (1967), 1095–1097;*Korteweg–de Vries equation and generalizations VI. Methods for exact solution*, Comm. Pure Appl. Math. **27** (1974), 97–133.

7. G. L. Lamb, Jr., *Analytical descriptions of ultra-short optical pulse propagation in a resonant medium*, Rev. Mod. Phys. **43** (1971), 99–129.

8. P. D. Lax, *Integrals of nonlinear equations of evolution and solitary waves*, Comm. Pure Appl. Math. **21** (1968), 467–490.

9. V. E. Zakharov, *On the stochastization of one-dimensional chains of nonlinear oscillators*, Soviet Phys. JETP **38** (1974), 108–110.

10. V. E. Zakharov and A. B. Shabat, *Exact theory of two-dimensional self-focusing and one-dimensional self-modulation of waves in nonlinear media*, Soviet Phys. JETP **34** (1972), 62–69.

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Controlabilité Exacte, Perturbations et Stabilisation de Systèmes Distribués, by J.-L. Lions. Masson, Paris, 1988, Vol. I: Controlabilité Exacte, X+ 537 pp. ISBN 2-225-81477-5 Vol. II: Perturbations; xiii+272 pp. ISBN 2-225-81474-0.

The two volume work reviewed here continues Professor Lions' lengthy list of fundamental contributions to the control theory of distributed systems—systems governed by partial differential and other infinite-dimensional processes—constituting just part of the work of a long and distinguished scientific career. The main subject matter concerns HUM, the Hilbert space Uniqueness Method, as a tool for studying Hilbert spaces of controllable states for a variety of linear partial differential equations, notably the wave equation, but the work also includes a contribution to asymptotic energy decay theory for the wave equation and some studies of the controllability of "perturbed" systems of the same sort, such as the wave equation in a "perforated" medium, applying homogenization techniques, and problems involving perturbations of the